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Radioiodine Treatment Effects on Lacrimal Glands Function in Patients with Thyroid Cancer

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Abstract:

Introduction: There is a limited number of case reports published in the past decade confirming the radio-iodine presence in the tear. These observations as well as reported cases of salivary and lacrimal gland dysfunction after radioiodine therapy stimulated investigators to clarify whether lacrimal gland function can be affected post-radioiodine therapy. Hence we planned a historical cohort study to evaluate this effect. **Methods:** We studied 100 eyes of 50 patients who were referred to the nuclear medicine department of Dr. Shariati hospital from 01.1383 to 02.1384 and had received high doses (accumulative dose: 100-450mCi) of I-131 treatment of differentiated thyroid carcinoma with their latest admission at least 3 months previously. Dry eye symptoms (obtained via a standard questionnaire) and Schirmer I test results (mm/5min) of this group were compared with those of an unexposed group (100 eyes of 50 individuals) matched by sex and age. Cases with another known cause(s) of dry eye were not included in either group. **Results:** 51% of the exposed eyes and 50% of the unexposed ones revealed at least one of the dry eye symptoms in the questionnaire. Data analysis showed no significant difference between the number of symptoms of two groups, but 2 symptoms (burning, unrelated to light and erythema) were significantly higher in the exposed eyes. From 9 exposed eyes complaining of erythema, Schirmer test result was abnormal only in 2 (one patient). Also among the 10 eyes with burning symptom (unrelated to light) one patient (2 eyes) revealed abnormal Schirmer test result. The study also demonstrated a significantly lower wetting amount of the Schirmer paper in exposed group compared to others. In the patients undergone radio-iodine therapy, results were 0-4 mm in 21%, 5-9 mm in 20% and 10 mm or more in 59%. These results were seen in the unexposed group in 6%, 17% and 77%, respectively. File review of the 21 exposed eyes with 0-4 mm Schirmer test results revealed presence of the migraine history in five (4 woman) surprisingly and 1311-avid skull metastasis in another patient (2 eyes). **Conclusion:** Long-term reduction in the tear secretion from major and/or minor lacrimal glands is seen after high-dose radio-iodine therapy, which seems to be severe in the majority of patients; however these patients complain of dry eye symptoms no more than unexposed population. Conditions such as migraine may be unknown causes of impaired tear secretion and need further investigation.

Keywords:

Radioiodine . Thyroid Cancer . Lacrimal glands . Iodine therapy . Long acting effects

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